

CLAIMS

What is claimed is:

1. A method of providing a signaling pattern for a bus having a plurality of bit lines, said method comprising:
for each selected bit line in said plurality of bit lines:
selecting at least one of a plurality of signals to be sent over said selected bit line;
and
further selecting at least one of said plurality of signals to be sent over at least one bit line in said plurality of bit lines other than said selected bit line.
2. The method of claim 1, wherein said selecting is performed simultaneously with said further selecting.
3. The method of claim 1, wherein said plurality of signals contains a set of pseudo-randomly generated bits.
4. The method of claim 1, wherein each signal sent over said selected bit line is identical to each corresponding signal sent over said at least one bit line in said plurality of bit lines other than said selected bit line .
5. The method of claim 1, wherein the number of bit lines in said plurality of bit lines is 2^N , where $N \geq 1$.
6. The method of claim 1, further comprising:
storing said plurality of signals in a serial presence detect circuit;
transferring said plurality of signals stored in said serial presence detect circuit into a memory controller; and
performing said selecting and further selecting from said plurality of signals transferred into said memory controller.

7. A method of signaling a bus having a plurality of bit lines, said method comprising:
transmitting one of a plurality of signals on a selected one of said plurality of bit lines;
simultaneously transmitting one of said plurality of signals on one or more of said
plurality of bit lines other than said selected bit line; and
repeating said transmitting and simultaneously transmitting for each bit line in said
plurality of bit lines.
8. The method of claim 7, wherein said plurality of signals contains a signaling pattern of
pseudo-randomly generated bits.
9. The method of claim 8, wherein each signal sent over said selected bit line is identical to
each corresponding signal sent over said one or more of said plurality of bit lines other
than said selected bit line.
10. A method of operating a memory connected to a bus, said method comprising:
transmitting one of a plurality of signals on a selected one of a plurality of bit lines in said
bus;
simultaneously transmitting one of said plurality of signals on one or more of said
plurality of bit lines other than said selected bit line; and
performing a data write/read operation at a data storage location in said memory using
said bus while said signals in said transmitting and simultaneously transmitting
are present on respective bit lines in said bus.
11. The method of claim 10, wherein said performing includes:
performing reading of data as part of said data write/read operation in conjunction with a
strobe signal received from a delay locked loop.
12. The method of claim 11, further comprising:
configuring said delay locked loop to provide a delay to said strobe signal so as to enable
latching of said data during reading thereof.

13. The method of claim 12, further comprising determining a duration of said delay based on accuracy of said data read during said data write/read operation.
14. The method of claim 13, further comprising repeating said transmitting, simultaneously transmitting, performing and determining for each bit line in said plurality of bit lines.
15. The method of claim 10, further comprising:
changing an operating condition of said memory, wherein said operating condition includes one or more of a supply voltage, a reference voltage, and temperature;
and
repeating said transmitting, simultaneously transmitting, and performing with said changed operating condition present.
16. A system comprising:
a plurality of memory cells to store data;
a serial presence detect circuit containing a plurality of test bits;
a bus having a plurality of bit lines; and
a memory controller in communication with said plurality of memory cells and said serial presence detect circuit via said bus, wherein said memory controller is configured to:
store therein said plurality of test bits received from said serial presence detect circuit via said bus,
transmit a first one of said plurality of test bits on a selected one of said plurality of bit lines in said bus,
also transmit a second one of said plurality of test bits on one or more of said plurality of bit lines other than said selected bit line, and
facilitate a data write/read operation at one of said plurality of memory cells using said bus while said first one and said second one of said plurality of test bits are present on respective bit lines in said bus.
17. The system of claim 16, wherein said memory controller is configured to transmit said

first one of said plurality of test bits instead of said second one of said plurality of test bits on said one or more of said plurality of bit lines other than said selected bit line.

18. The system of claim 16, wherein said memory controller is configured to transmit said first one and said second one of said plurality of test bits simultaneously.
19. The system of claim 18, further comprising:
a delay locked loop circuit configured to provide a delayed strobe signal during reading of data as part of said data write/read operation.
20. A system comprising:
a memory chip having a serial presence detect circuit containing a plurality of test bits;
a bus having a plurality of bit lines; and
a processor connected to said memory chip via said bus and in communication therewith through said bus, wherein said processor includes:
a memory controller configured to perform the following:
store therein said plurality of test bits received from said serial presence detect circuit via said bus,
transmit a first one of said plurality of test bits on a selected one of said plurality of bit lines in said bus, and
further transmit a second one of said plurality of test bits on one or more of said plurality of bit lines other than said selected bit line.
21. The system of claim 20, wherein said memory chip further includes:
a plurality of memory cells to store data, wherein each of said plurality of memory cells is in communication with said memory controller, and wherein said memory controller is configured to further perform the following:
enable said processor to perform a data write/read operation at one of said plurality of memory cells using said bus while said first one and said second one of said plurality of test bits are present on respective bit lines in said bus.

22. The system of claim 21, wherein said processor further includes:
a delay locked loop circuit configured to provide a delayed strobe signal during reading
of data as part of said data write/read operation,
wherein said processor is configured to adjust a duration of delay for said delayed strobe
signal based on accuracy of said data read during said data write/read operation.
23. The system of claim 20, wherein the number of bit lines in said plurality of bit lines is 2^N ,
where $N \geq 1$.
24. The system of claim 20, wherein said memory controller is configured to further perform
the following:
transmit each of said plurality of test bits in a sequence on said selected bit line; and
further transmit a shifted version of said sequence on said one or more of said plurality of
bit lines other than said selected bit line, wherein the total number of test bits in
said shifted version of said sequence is identical to the total number of test bits in
said sequence, and wherein said shifted version of said sequence is generated by
shifting the position of each test bit in said sequence by a predetermined offset.
25. The system of claim 24, wherein said predetermined offset ranges in value from one bit
to the total number of test bits minus one.